

<p>ITC 212 CAD/CAM for Clothing</p> <hr/> <p><i>Lecture 4</i> Fashion Design CAD Systems</p> <p>Dr. Roger Ng Institute of Textiles and Clothing Hong Kong Polytechnic University 2008-2009</p>	<p>Slide 1 ITC 212</p> <p>NOTES:</p>
<p>Content</p> <hr/> <ul style="list-style-type: none"> ▪ Revision of concepts from last lecture ▪ Fashion CAD System <ul style="list-style-type: none"> > Fashion Design System Vs General Purpose Design System > Common problems with fashion designers > Barrier of adopting 3D fashion CAD ▪ Revision of concepts of this lecture 	<p>Slide 2 Content</p> <p>NOTES:</p>
<p>Revision of Last Lecture</p> <hr/> <ul style="list-style-type: none"> ▪ 3D body scanner ▪ 3D mannequin generation ▪ 3D fashion design ▪ 3D pattern unfolding ▪ 3D visualization 	<p>Slide 3 Revision of Last Lecture</p> <p>NOTES:</p>

<p>3D Body Scanner</p> <hr/> <p>Advanced Topic:</p> <ul style="list-style-type: none"> ▪ Definition <ul style="list-style-type: none"> > A machine, which can digitize the image of a human subject. > Technology available <ul style="list-style-type: none"> – Mechanical (Contact) – Infra Red (Non-contact) – Laser (Non-contact) – Mems (Non-contact) – Ultra Sound (Non-contact) – Photo-stereogram (Non-contact) – Computed Tomology (Non-contact) 	<p>Slide 4 3D Body Scanner</p> <hr/> <p>NOTES:</p>
<p>3D Mannequin Generation</p> <hr/> <p>Advanced Topic:</p> <ul style="list-style-type: none"> ▪ Definition <ul style="list-style-type: none"> > After the body is scanned, the computer generates the image for further processing. ▪ Existing Methods <ul style="list-style-type: none"> > Finite Element Mesh Method > Meshless Method > Biomechanical Method > Algebraic Mannequin Method 	<p>Slide 5 3D Mannequin Generation</p> <hr/> <p>NOTES:</p>
<p>3D Fashion Design</p> <hr/> <p>Advanced Topic:</p> <ul style="list-style-type: none"> ▪ Definition <ul style="list-style-type: none"> > To design the garment on top of the virtual garment which is generated or scanned. ▪ Method <ul style="list-style-type: none"> > Put the standard design details and project on the mannequin for visualization. (Easy) > Directly draw the garment on the virtual mannequin in 3D space. (Difficult) 	<p>Slide 6 3D Fashion Design</p> <hr/> <p>NOTES:</p>

<p>3D Pattern Unfolding</p> <hr/> <p>Advanced Topic:</p> <ul style="list-style-type: none"> ▪ Definition <ul style="list-style-type: none"> > To unfold the 3D garment surface into 2D garment pattern. ▪ Method <ul style="list-style-type: none"> > Finite Element Method > Cone Method > Cylinder Method > Tree Method > Bijective Pattern Map Method 	<p>Slide 7 3D Pattern Unfolding</p> <hr/> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>3D Visualization</p> <hr/> <p>Advanced Topic:</p> <ul style="list-style-type: none"> ▪ Definition <ul style="list-style-type: none"> > To simulate the 3D virtual mannequin with clothes on and perhaps a little of Car Walk. ▪ Methods <ul style="list-style-type: none"> > OpenGL - 3D graphic standard by SGI > VRML - Virtual Reality Modelling Language > MTS - by Viewpoint Company 	<p>Slide 8 3D Visualization</p> <hr/> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>In Class Activity</p> <hr/>	<p>Slide 9 In Class Activity</p> <hr/> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

<p>Fashion CAD Vs General Purpose Design CAD</p> <hr/> <ul style="list-style-type: none"> ■ Fashion CAD <ul style="list-style-type: none"> > For 2D fashion design (e.g. Prima System) > For 3D fashion design (e.g. Maya Cloth) ■ General Purpose Design CAD <ul style="list-style-type: none"> > For general 2D design drawing (e.g. Illustrator, PhotoShop, Core_Draw, Freehand, etc.) > For general 3D design drawing (e.g. AutoCAD, Integraph, Pro Engineer, CATIA, etc.) 	<p>Slide 13 Fashion CAD</p> <p>NOTES:</p>
<p>Prima System</p> <hr/> <p>Summary of key features:</p> <ul style="list-style-type: none"> ■ Fabric design ■ Illustration ■ 2-1/2 D draping simulation ■ Color combo ■ Color separation 	<p>Slide 14 Prima System</p> <p>NOTES:</p>
<p>Prima System (Cont.)</p> <hr/> <p>Standard features:</p> <ul style="list-style-type: none"> ■ Free hand drawing ■ Geometric object drawing ■ Curve drawing ■ Fabric weaving/knitting ■ Image scanning ■ File saving/exporting ■ Etc. 	<p>Slide 15 Prima System (Cont.)</p> <p>NOTES:</p>

<p>Prima System (Cont.)</p> <hr/> <p>Equipment configuration</p> <ul style="list-style-type: none"> ▪ Intel-based PC ▪ Operating System: Windows 9X/ME/2000/NT ▪ RAM: 256MB+ ▪ Display card: Graphics accelerator card w/ 32MB+ RAM ▪ Display resolution: 1024x768+ ▪ Harddisk: 1GB+ 	<p>Slide 16 Prima System (Cont.)</p> <hr/> <p>NOTES:</p>
<p>Illustrator & PhotoShop</p> <hr/> <p>Slide System</p> <ul style="list-style-type: none"> ▪ Illustrator - drawing ▪ PhotoShop - touching up 	<p>Slide 17 Illustrator & PhotoShop</p> <hr/> <p>NOTES:</p>
<p>Illustrator</p> <hr/> <ul style="list-style-type: none"> ▪ Free hand drawing ▪ Geometric object drawing ▪ Curve drawing ▪ Image scanning ▪ File saving/exporting ▪ Etc. 	<p>Slide 18 Illustrator</p> <hr/> <p>NOTES:</p>

<p>PhotoShop</p> <hr/> <ul style="list-style-type: none"> ▪ Image scanning ▪ Image touching up ▪ Colour change ▪ Colour separation ▪ File saving/exporting ▪ Etc. 	<p>Slide 19 PhotoShop</p> <hr/> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Maya Cloth</p> <hr/> <p>Summary of key features:</p> <ul style="list-style-type: none"> ▪ Dress up dummy on virtual space ▪ Simulate garments ▪ Incorporate fabric mechanical properties ▪ Product of Alias/Wavefront under SGI <ul style="list-style-type: none"> ➢ Used to know as Alias 	<p>Slide 20 Maya Cloth</p> <hr/> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Maya Cloth (Cont.)</p> <hr/> <p>Equipment configuration:</p> <ul style="list-style-type: none"> ▪ Intel-based PC, SGI ▪ Operating System: Windows NT, Unix ▪ RAM: 256MB-(PC), 512MB-(SGI) ▪ Display card: Graphics accelerator card w/ 32MB- RAM (PC) ▪ Display resolution: 1024x768+ ▪ Harddisk: 1GB+ 	<p>Slide 21 Maya Cloth (Cont.)</p> <hr/> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

<p>AutoCAD</p> <hr/> <ul style="list-style-type: none"> ▪ 2D free hand drawing ▪ 2D 3D Geometric object drawing ▪ 2D 3D Curve drawing ▪ Surface drawing ▪ Drawing library ▪ File saving/exporting ▪ Etc. 	<p>Slide 22 AutoCAD</p> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>CATIA</p> <p>Reverse Engineering Software</p> <ul style="list-style-type: none"> ▪ 3D Data Cloud Importing ▪ 2D 3D Geometric object drawing ▪ 2D 3D Curve drawing ▪ Surface drawing/generation ▪ Drawing library ▪ File saving/exporting ▪ Etc. 	<p>Slide 23 CATIA</p> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Some demonstration of Fashion CAD Systems</p> <hr/>	<p>Slide 24 Some demonstration</p> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

<p>Common problems with fashion designers</p> <hr/> <ul style="list-style-type: none"> ▪ Different input media <ul style="list-style-type: none"> > Manual fashion illustration is based on pencil, brush, etc. Vs mouse or graphics tablet. ▪ Different drawing skill <ul style="list-style-type: none"> > Free hand drawing Vs geometric drawing. ▪ Different feeling <ul style="list-style-type: none"> > Human Vs computer ▪ Consistency of colour <ul style="list-style-type: none"> > True colour Vs computer generated colour. 	<p>Slide 25 Common problems with designers</p> <p>NOTES:</p>
<p>Barrier of Adopting 3D Fashion CAD System</p> <hr/> <ul style="list-style-type: none"> ▪ Different concept <ul style="list-style-type: none"> > 2D Vs 3D ▪ Different drawing skill <ul style="list-style-type: none"> > 2D Vs 3D ▪ Different control skill <ul style="list-style-type: none"> > Controlling the drawing plane > Controlling large amount of control vertices ▪ Different background <ul style="list-style-type: none"> > Craftman based Vs engineering based 	<p>Slide 26 Barrier of Adopting</p> <p>NOTES:</p>
<p>Revision of Concepts</p> <hr/> <ul style="list-style-type: none"> ▪ Fashion Design System Vs General Purpose Design System <ul style="list-style-type: none"> > More powerful, efficient ▪ Common problems with fashion designers <ul style="list-style-type: none"> > Different input media, drawing skill, feeling ▪ Barrier of adopting 3D fashion CAD <ul style="list-style-type: none"> > Different concept, drawing skill, control skill, background 	<p>Slide 27 Revision of Concepts</p> <p>NOTES:</p>

<p>Revision</p> <hr/> <p>Some names to remember</p> <ul style="list-style-type: none"> ▪ Adobe: illustrator, photoshop ▪ Corel: coreldraw ▪ SGI: alias/wavefront - maya cloth ▪ Autodesk: AutoCAD ▪ Mitech: CATIA 	<p>Slide 28 Revision</p> <hr/> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>End of Presentation!</p> <hr/> <div style="border: 1px solid blue; width: 280px; height: 20px; margin: 20px auto;"></div>	<p>Slide 29 End of Presentation!</p> <hr/> <p>NOTES:</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>